

Date of Problem	May 15, 2014 River Road WWTP
Describe the problem (what happened, when it was detected, how it was detected, etc)	On May 15, 2014 the Aerobic process of the River Road WWTP removed all residual Ammonia from water entering the Chlorination basin. No major changes had been implemented in the previous 24 hours leading up to the loss of Ammonia.
Describe how the problem impacted or could have impacted the DPR treatment processes.	This lead to a loss of Monochloramine in the DPR transmission pipe on May 16, 2014.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The Dissolved oxygen set point in AB#1 was left at 0.3 with no increase.
What options are available, if any, to avoid a recurrence?	Started to waste from the Anaerobic Sludge Holding Tank at a slower rate and more often. This reduced the diurnal swing of of Ammonia then no Ammonia returning to the beginning of the Aerobic process. In addition this spread the return of in plant Ammonia out over a longer period.
What options, if any, could be implemented to reduce response time if the problem does reoccur?	This would be to bring on an additional low aeration basin to allow Ammonia to have two routes to move through.
Action Plan	No additional action was taken at this time.

Date of Problem	5-18-14 Cypress 2010 Plant
Describe the problem (what happened, when it was detected, how it was detected, etc)	Filters 3 and 5 were brought online as filters 1 and 2 had reached their 100 hours of run time. Upon bringing on the filters, the turbidity remained over 0.3 NTU for two consecutive 15-minute readings.
Describe how the problem impacted or could have impacted the DPR treatment processes.	The only impact on the DPR was the loss of a total of 0.5 LRV from the enhanced individual filter effluent turbidity. Since the combined filter effluent turbidity remained below 0.15 NTU, the City still obtained the 0.5 LRV for the CFE.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The lead Operator attempted to maintain a set flow by placing the filter effluent control valve in manual and setting the flow to 2 MGD. The Plant Superintendent inspected the turbidimeters for both filters when the turbidity remained over 0.3 for 15 minutes. Upon inspection of the turbidimeter body, sediment was visible. The body of each turbidimeter was thoroughly cleaned and the turbidity values dropped into compliance.
What options are available, if any, to avoid a recurrence?	Both filters had been offline for several months, with no water running to the turbidimeter. When filters are left offline for long periods of time in the future, water will be flushed to the turbidimeter weekly by opening the filter isolation valve. This will keep any sediment from building up inside the turbidimeter and feed lines.
What options, if any, could be implemented to reduce response time if the problem does reoccur?	If filter effluent turbidity values remain greater than 0.3 NTU, the turbidimeter body will be checked to ensure no sediment is causing a false reading.
Action Plan	Maintaining water flow to the turbidimeter will be a key aspect of avoiding future turbidity spikes when placing a filter in service after an extended period off-line. Maintenance personnel also clean the turbidimeter body of each turbidimeter during the weekly verification process.

Date of Problem	5-19-14 Cypress WTP
Describe the problem (what happened, when it was detected, how it was detected, etc)	Samples were collected at location TCEQ-40J on May 19, 2014 for total trihalomethanes and haloacetic acid testing. The results for those samples showed TTHMs of 75.5 ug/L and HAA5 of 35.9 ug/L. Although these values were less than the MCL for each, the City expected lower values, such as those in FSVT1.
Describe how the problem impacted or could have impacted the DPR treatment processes.	The concentrations detected did not have an impact on the DPR, as each was less than the MCL.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The Laboratory collected a second set of samples at location TCEQ-40J on May 30, 2014 for TTHM and HAA5 testing.
What options are available, if any, to avoid a recurrence?	The City believes the TTHM and HAA5 concentrations detected in the May 19 th sample set were a direct result of the loss of ammonia at the waste water treatment plant. This loss of ammonia allowed a free chlorine concentration to form that resulted in greater than normal TTHM and HAA5 formation. The City set up a liquid ammonium sulfate pump system at the chlorine injection point to maintain a steady ammonia feed and ensure monochloramine formation.
What options, if any, could be implemented to reduce response time if the problem does reoccur?	The liquid ammonium sulfate is now used full time at the waste water treatment plant to maintain a stable ammonia concentration for monochloramine formation.
Action Plan	Using the liquid ammonium sulfate for monochloramine formation has helped to maintain steady monochloramine residuals and reduce the TTHM and HAA5 formation potential.

Date of Problem	May 19, 2014 Cypress WTP
Describe the problem (what happened, when it was detected, how it was detected, etc)	Upon receiving the off-site laboratory results back for the May 19 th sampling, the Langlier Saturation Index (LSI) was -0.38.
Describe how the problem impacted or could have impacted the DPR treatment processes.	The TCEQ requested that the City maintain a scale forming water when it is sent to the distribution system. The LSI did not affect or impact the DPR treatment processes.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The City performed a new LSI to calculate the optimal pH range to maintain a scale forming water. This optimal pH range was calculated to be 9.0 – 9.2 standard pH units. The carbon dioxide pH set point was adjusted to a pH of 9.2 and the finished water pH was within that range in approximately 4 hours.
What options are available, if any, to avoid a recurrence?	The City calculates the LSI weekly, with the current data.
What options, if any, could be implemented to reduce response time if the problem does reoccur?	The pH adjustment in the 2010 SWTP occurs very quickly and a reduction of response time is not needed for this particular event.
Action Plan	The LSI calculations will be used for optimal pH ranges, and the pH in the 2010 SWTP will be adjusted accordingly.

Date of Problem	5-20-14 Cypress 2010 Plant
Describe the problem (what happened, when it was detected, how it was detected, etc)	The City of Wichita Falls normally adds lime for softening purposes in the treatment process. For optimal softening, the pH is typically adjusted to 10.5. Disinfection credit is not applied at a pH greater than 10.0.
Describe how the problem impacted or could have impacted the DPR treatment processes.	The City disinfection zone that contains the 2010 clarifier, DZ4, would not have applied with the pH at 10.5.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The City will monitor pH at the clarifier effluent for the DZ4. The lime addition was also reduced to maintain a pH of 10.0 or less, thereby maintaining disinfection credit in that zone. This also gives the ability for the City to raise the pH to soften and maintain disinfection credit with all other disinfection zones, minus DZ4.
What options are available, if any, to avoid a recurrence?	The City had two options. One option was to break up the DZ4 into 2 zones, one containing the clarifier and one for the recarbonation basin. The second option was to monitor the pH for DZ4 at the clarifier effluent, prior to addition of carbon dioxide. The City chose to keep the DZ4 and monitor the pH at the clarifier effluent.
What options, if any, could be implemented to reduce response time if the problem does reoccur?	Checking the pH at 2 hour intervals at the 2010 clarifier effluent will help to ensure the pH can be maintained in the optimal range for disinfection credit.
Action Plan	The City will monitor pH for DZ4 at the 2010 clarifier effluent.

Date of Problem	5/24/14 into 5/25/14
Describe the problem (what happened, when it was detected, how it was detected, etc)	(River Road WWTP) The Ammonia entering 1J was decreasing and thus affecting the production of Monochloramine in the Chlorination system. This was detected by the River Road operators while testing regular grab samples at 1J.
Describe how the problem impacted or could have impacted the DPR treatment processes.	The loss of Monochloramine in the transference of reclaimed water from the River Road WWTP to the Cypress WTP would have reduced the CT credit for the project by lowering the ability to disinfect through the pipe line.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The Operators lead by Mark Huggins took measurements from the Aeration Basin for Ammonia showing that there was a reduction in Ammonia leaving the Aeration Basin. The operators notified the Wastewater Supervisor (Bill Thornton) to discuss the situation and to let him know they thought it was time to follow the new SOP concerning the use of Liquid Ammonia Sulfate because the Ammonia level had fallen to just less than 1 mg/l at 1J. The LAS was started at 9:30 PM and there was an effect on the Monochloramine residual which began to climb. The Ammonia level before 1J was monitored every two hours. When the Ammonia level started increasing to 1J the LAS was stopped. This was at 1:45AM on May 25 th . From this point on the Ammonia levels from the Aerations Basins were sufficient to produce the appropriate level of Monochloramines.
What options are available, if any, to avoid a recurrence?	This was the first use of the LAS and LAS has shown that it is the correct response to low Ammonia levels entering 1J
What options, if any, could be implemented to reduce response time if the problem does reoccur?	
Action Plan	One of the largest sources of Ammonia is from the River Road WWTP's dewatering of Anaerobic Digested Sludge. The dewatering operation schedule has been changed since this occurrence. The new dewatering schedule is to run intermittently throughout the day and at a slower rate. This modulates the impact of the Ammonia returning to the Aeration basin.

Date of Problem	5-31-14 Cypress 2010 Plant
Describe the problem (what happened, when it was detected, how it was detected, etc)	Filter 5 effluent isolation valve faulted approximately 3 minutes after starting the filter, at 3 PM. The lead Operator on duty saw the valve close shortly after he had opened it to begin filtering water and went to the 2010 filter building to reset the valve at the # 5 filter control panel.
Describe how the problem impacted or could have impacted the DPR treatment processes.	The filter went into shutdown and stopped filtering. The water level was still low enough in the filter that it did not require immediately changing to a new filter.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The lead Operator on duty went to the 2010 filter building and pressed the fault reset button on the # 5 filter panel to clear the fault. He then opened the filter effluent isolation valve to begin filtering again.
What options are available, if any, to avoid a recurrence?	The speed at which the valve opens may need to be adjusted to open quicker so that the valve opening does not time out.
What options, if any, could be implemented to reduce response time if the problem does reoccur?	The addition of an effluent isolation valve fault alarm on SCADA would alert Operators in the case that they do not have the filter page open for viewing.
Action Plan	Maintenance will check the speed at which the valve opens the next time the filter is offline.

Date of Problem	6/4/14 River Road WWTP
Describe the problem (what happened, when it was detected, how it was detected, etc)	At 6:45 PM the data on the SCADA system stopped changing. All trending of data became flat line.
Describe how the problem impacted or could have impacted the DPR treatment processes.	Without the SCADA system all automatic controls are lost and many automated systems remain at the last know setting. The main pumps at the headwork of the plant shut down. Reducing the flow through the plant.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The Operators went to the Chlorine Contact Basin as first priority. After placing everything in hand at the CCB the other areas of the plant were also placed in hand. At 7:50 PM found all headwork's pumps off. The operators went to the Headwork's and found all the pumps off. They turned on three pumps at the local control and monitored the Primary Clarifier flow. At 8PM the Primary flow was reestablished to 9.40 MGD. At 7:55Pm they called the Supervisor Bill Thornton who went to the Plant. At 8:40PM the influent Chlorine to the CCB (2J) Titrated Monochloramine of 3.00mg/L and the Total Chlorine was 3.55. The Chlorine residual at 2J-B was Mono 2.45 and the total was 2.8 mg/l. The Maintenance supervisor was called out to work on the PLC and SCADA. He found a short in the system and isolated the short restoring the system. At 8:40 the Monochloramine was at 2J was 2.45 and total was 4.7 mg/L. At 9AM the Monochloramine was 3.00 and the Total Chlorine was 3.55 mg/l At this time we found that the Monochloramine analyzer was not working properly and the Electronic Tech was called out. He had the Monochloramine working by 10:49 PM. Also during this time the systems in the plant were brought back into auto and verified at all locations on the plant that they were operating correctly.
What options are available, if any, to avoid a recurrence?	
What options, if any, could be implemented to reduce response time if the problem does reoccur?	None at this time. The operators found the problem quickly and responded. It takes time to cover the whole plant and take it out of Automation and then place it back into automation. This takes manpower.

Date of Problem	June 4, 2014 9:21 AM
Describe the problem (what happened, when it was detected, how it was detected, etc)	The River Road WWTP experienced a major power outage. The PLC and SCADA system to the River Road WWTP stayed operational because the backup power supply to the Computers automatically engaged.
Describe how the problem impacted or could have impacted the DPR treatment processes.	This power outage affected the plant from the pumping station at the beginning of the plant to the chlorination system. The DPR pump did shut down and there was a loss of Chlorine monitoring.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The Operators on duty observed the SCADA system to see where on the plant there was a loss of signal or shut downs. Then they recruited the help of the Electronic Technician. The ET and Operators reset the breakers at the main MCC in operations. After this the two Operators split up and one went to the Chlorination system and the other to the Headworks. The power to the Chlorination system was restored within 5 minutes. The Headworks shortly after. The gravity flow through the plant continued. Due to the detention time and the complete mix of the water in the Chlorine Contact Basin there was no loss of Effluent Chlorine residual at 1J-b.
What options are available, if any, to avoid a recurrence?	The power outage was short lived due the plant automatically switching to the alternate power feed. In addition the power outage was due to somebody damaging a utility pole nearby. This was confirmed by Oncor whom maintains the electrical transmission lines. Therefore taking this power interruption out of our control.
What options, if any, could be implemented to reduce response time if the problem does reoccur?	I five minute response time is about as short as possible due to the distance that is covered.
Action Plan	There are no additional actions that can be taken at this time.

Date of Problem	June 7, 2014 7:45PM
Describe the problem (what happened, when it was detected, how it was detected, etc)	The Turbidity online meter at River Road WWTP spiked. This was detected on the SCADA system as a high Turbidity alarm.
Describe how the problem impacted or could have impacted the DPR treatment processes.	This shut off the pump for the DPR.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The Operators responded by going to the Turbidity meter and checking the flow to the meter. They grabbed a sample from the Chlorine Contact Basin and examined it for visible turbidity. The Turbidity appeared low. Then they found extremely low flow going to the meter. They went and switched sample pumps at 1J and cleaned the previous pump that was on online making it the backup pump. This restarted the pump. Because the issue was not actually high Turbidity the High Turbidity SOP was not taken beyond the confirmation that it was not actually high Turbidity.
What options are available, if any, to avoid a recurrence?	Currently the sample pumps are cleaned once a week and rotated. This frequency may have to be increased.
What options, if any, could be implemented to reduce response time if the problem does reoccur?	The pump was off for a total of 6 minutes. Considering the area that was covered this is very quick response time.
Action Plan	The sample pumps will be rotated and cleaned twice a week.

Date of Problem	June 9, 2014 River Road WWTP
Describe the problem (what happened, when it was detected, how it was detected, etc)	A strong Thunderstorm moved over the plant with Cloud to ground lightning. During this time there was a power interruption.
Describe how the problem impacted or could have impacted the DPR treatment processes.	The DPR transmission pump was shut down.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	The Operators checked all equipment. Restored power where it did not come back on. Then restarted the DPR pump. The pump was off for approximately 10 minutes.
What options are available, if any, to avoid a recurrence?	There are none at this time.
What options, if any, could be implemented to reduce response time if the problem does reoccur?	Considering the distance and the severe weather the response time was minimum.
Action Plan	None for Electrical storms.

Date of Problem	June 9, 2014 River Road WWTP
Describe the problem (what happened, when it was detected, how it was detected, etc)	The pump for the Liquid Ammonia Sulfate lost suction.
Describe how the problem impacted or could have impacted the DPR treatment processes.	The loss of LAS stopped the feed of Ammonia for the formation of Monochloramines. Due to the complete mix of the Chlorine Contact Basin and the short duration the loss of Monochloramine to the transmission pipe line did not happen. If continued for an extended period of time this could have loss the disinfection or the transmission pipe line.
Describe the response. (who did what and when; did the responses achieve the desire results; how long did it take return to normal operations, etc)	Operators switched to the backup pump.
What options are available, if any, to avoid a recurrence?	
What options, if any, could be implemented to reduce response time if the problem does reoccur?	The pump loss suction. We are in the process of setting up new totes which will use a flooded suction to the pumps. With this set up as the tote empties there will not be an increase in lift to the pump.
Action Plan	The new totes and piping are being prepared today.